WHAT IS CLAIMED IS:

1. A method of forming a three-dimensional object by selective deposition modeling from a solidifiable build material, the three-dimensional object having an outer surface defined by a shell structure of a desired dimensional configuration surrounding an internal volume of the object, the method comprising the steps of:

dispensing the build material in a flowable state to form layers of the object comprising the shell structure and an internal lattice structure formed in the areas of the layers that reside within the internal volume of the object, the internal lattice structure formed by dispensing the build material along a plurality of continuous segments that attach across the shell structure of the layer being formed for maintaining the desired dimensional configuration of the shell structure as it is formed; and

solidifying the dispensed material to a non-flowable state, the internal lattice structure substantially preventing the shell structure from non-uniformly deforming as the build material solidifies and shrinks.

2. The method of claim 1 wherein the internal lattice structure interconnects the shell structure in a X-direction, in a Y-direction, and in a Z-direction to maintain the desired dimensional configuration in all three-dimensions as the build material solidifies and shrinks.

3. The method of claim 1 wherein the plurality of continuous segments of the internal lattice structure forms a plurality of vertically extending supports.

4. The method of claim 3 wherein at least one of the vertically extending supports is a flat planar element.

5. The method of claim 3 wherein at least one of the vertically extending supports is a curved planar element.

6. The method of claim 3 wherein the vertically extending supports extend between upward facing surfaces and downward facing surfaces of the shell structure of the three-dimensional object and thereby establish a plurality of elongated compartments within the three-dimensional object.

7. The method of claim 6 further comprising the step of:

dispensing the build material to form post supports residing within said elongated compartments to provide support for upward facing surfaces of the shell structure of the three-dimensional object formed over said elongated compartments.

8. The method of claim 6 wherein the horizontal cross-sectional shape of said elongated compartments is polygonal.

9. The method of claim 1 further comprising the steps of:

providing computer data representing the three-dimensional object, the computer data comprising data representing the shell structure; and

processing the computer data to establish layer data for forming the layers of the object comprising the shell structure and internal lattice structure.

10. The method of claim 10 further comprising the step of:

providing the ability to enlarge the computer data with respect to the desired dimensional configuration of the three-dimensional object to account for linear shrinkage

of the three-dimensional object as it is formed, the ability to enlarge the computer data provided the step of processing the computer data to establish layer data.

11. The method of claim 1 wherein the build material is a phase change material solidified by lowering the temperature of the build material after it has been dispensed.

12. The method of claim 1 wherein the build material is a powder and is solidified by selectively dispensing a binder that reacts with the powder to cure the powder to form the shell structure and the internal lattice structure.

13. A method of forming a three-dimensional object by selective deposition modeling from a build material curable upon exposure to actinic radiation, the three-dimensional object having an outer surface defined by a shell structure of a desired dimensional configuration, the method comprising the steps of:

dispensing the curable build material in a flowable state to form layers of the object comprising the shell structure and an internal lattice structure in the areas of the layers that reside within the internal volume of the object, the internal lattice structure formed by dispensing the build material along a plurality of continuous segments that attach across the shell structure of the layer being formed for maintaining the desired dimensional configuration of the shell structure as it is formed;

solidifying the dispensed to a non-flowable state, the internal lattice structure substantially preventing the shell structure from non-uniformly deforming as the build material solidifies and shrinks; and

curing the dispensed layers of build material after the dispensed build material has solidified.

14. The method of claim 13 wherein the internal lattice structure interconnects the shell structure in a X-direction, in a Y-direction, and in a Z-direction to maintain the desired dimensional configuration in all three dimensions as the build material solidifies and shrinks.

15. The method of claim 13 further comprising the steps of:

providing computer data representing the three-dimensional object, the computer data comprising data representing the shell structure; and

processing the computer data to establish layer data for forming the layers of the object comprising the shell structure and internal lattice structure.

16. The method of claim 15 further comprising the step of:

providing the ability to enlarge the computer data with respect to the desired dimensional configuration of the three-dimensional object to account for linear shrinkage of the three-dimensional object as it is formed, the ability to enlarge the computer data provided before the step of processing the computer data to establish layer data.

17. The method of claim 13 further comprising the steps of:

dispensing a support material in a flowable state to support the shell structure of the three-dimensional object;

solidifying the dispensed support material to a non-flowable state; and

removing at least some of the support material from the three-dimensional object after the three-dimensional object has been formed.

18. The method of claim 17 wherein the plurality of continuous segments of

the internal lattice structure form a plurality of vertically extending supports.

19. The method of claim 18 wherein at least one of the vertically extending supports is a flat planar element.

20. The method of claim 18 wherein at least one of the vertically extending supports is a curved planar element.

21. The method of claim 18 wherein the vertically extending supports extend between upward facing surfaces and downward facing surfaces of the shell structure of the three-dimensional object and thereby establish a plurality of elongated compartments within the three-dimensional object.

22. The method of claim 21 wherein the support material is dispensed into each elongated compartment to provide support for upward facing surfaces of the shell structure of the three-dimensional object formed over said elongated compartments.

23. The method of claim 21 wherein the horizontal cross-sectional shape of said elongated compartments is polygonal.

24. The method of claim 21 wherein the elongated compartments are interconnected and the method further comprising the steps of:

providing a drainage opening in the shell structure; and

removing the support material from the elongated compartments after the three-dimensional object has been formed.

25. A three-dimensional object formed in a selective deposition modeling process from a solidifiable build material, the three-dimensional object comprising:

an outer shell structure having a desired dimensional configuration;

an internal lattice structure formed within the internal volume of the three-dimensional object and attached to the outer shell structure, the internal lattice structure formed in situ with the outer shell structure as the layers are formed, the internal lattice structure comprising a plurality of continuous vertically extending supports that maintain the desired dimensional configuration of the shell structure as it is formed.

26. A three-dimensional object of claim 25 wherein the internal lattice structure interconnects the shell structure in a X-direction, in a Y-direction, and in a Z-direction to maintain the desired dimensional configuration in all three-dimensions as the build material solidifies and shrinks.

27. The three-dimensional object of claim 25 wherein at least one of the vertically extending supports is a flat planar element.

28. The three-dimensional object of claim 25 wherein at least one of the vertically extending supports is a curved planar element.

29. The three-dimensional object of claim 25 wherein the vertically extending supports extend between upward facing surfaces and downward facing surfaces of the shell structure of the three-dimensional object and thereby establish a plurality of elongated compartments within the three-dimensional object.

30. The three-dimensional object of claim 25 further comprising a plurality of

post supports residing within said elongated compartments providing support for upward facing surfaces of the shell structure of the three-dimensional object formed over said elongated compartments.

31. The three-dimensional object of claim 30 wherein the horizontal cross-sectional shape of said elongated compartments is polygonal.

32. A three-dimensional object formed in a selective deposition modeling process from a curable build material, the three-dimensional object comprising:

an outer shell structure having a desired dimensional configuration;

an internal lattice structure formed within the internal volume of the three-dimensional object and attached to the outer shell structure, the internal lattice structure formed in situ with the outer shell structure as the layers are formed, the internal lattice structure comprising a plurality of continuous vertically extending supports that maintain the desired dimensional configuration of the shell structure as it is formed.

33. The three-dimensional object of claim 32 wherein the build material is cured by a polymerization reaction.

34. The three-dimensional object of claim 33 wherein the polymerization reaction is selected from the group consisting of photo-polymerization, thermal-polymerization, or a combination thereof.

35. The three-dimensional object of claim 32 wherein the build material is cured by application of a binder that reacts with the build material to form a solid.

36. The three-dimensional object of claim 32 wherein a solidifiable support material is dispensed to support the shell structure of the three-dimensional object during the selective deposition modeling process. .

37. The three-dimensional object of claim 32 wherein the internal lattice structure interconnects the shell structure in a X-direction, in a Y-direction, and in a Z-direction to maintain the desired dimensional configuration in all three dimensions as the build material solidifies and shrinks.

38. The three-dimensional object of claim 32 wherein at least one of the vertically extending supports is a flat planar element.

39. The three-dimensional object of claim 32 wherein at least one of the vertically extending supports is a curved planar element.

40. The three-dimensional object of claim 32 wherein the vertically extending supports extend between upward facing surfaces and downward facing surfaces of the shell structure of the three-dimensional object and thereby establish a plurality of elongated compartments within the three-dimensional object.

41. The three-dimensional object of claim 40 wherein a solidifiable support material is dispensed into each elongated compartment to provide support for the upward facing surfaces of the shell structure of the three-dimensional object formed over said elongated compartments.

42. The three-dimensional object of claim 41 wherein the horizontal cross-

sectional shape of said elongated compartments is polygonal.

43. The three-dimensional object of claim 42 wherein the elongated compartments are interconnected and a drainage opening is provided in the shell structure for removing the support material from the elongated compartments after the three-dimensional object has been formed.